

CLAIMS

5 *at* 1. A method of fabricating an electronic device (38) comprising the steps of:

- (a) forming a predetermined pattern of weakened regions (6) in a layer (2) of rigid material which define contiguous portions (14) of the rigid layer;
- (b) providing electronic components (12) on the rigid layer (2); and
- (c) forming flexible connectors (16) which extend between components (12) on different portions (14).

10 2. A method of Claim 1 including the step of dividing the rigid layer (2) along the weakened regions (6).

15 3. A method of Claim 1 including the step of mounting the rigid layer (2) over a flexible substrate (18).

20 4. A method of Claim 1 wherein the connectors (16) are formed by electroplating metal onto the rigid layer (2).

25 5. A method of Claim 4 wherein a seed layer (30) is deposited prior to electroplating the metal connectors (16).

6. A method of Claim 4 wherein areas of photoresist (24,26,28) are defined over the rigid layer (2) prior to electroplating the metal, such that portions of the connectors (16) form bridges over the photoresist, and the photoresist is subsequently removed.

30 7. A method of fabricating an electronic device (38) comprising the steps of:

- (a) providing electronic components (12) on a rigid layer (2);
- (b) forming flexible connectors (16) which extend between components (12) on different contiguous portions (14) of the rigid layer (2); and

(c) dividing the rigid layer (2) into the contiguous portions (14).

8. A method of Claim 7 including the step of mounting the rigid layer (2) over a flexible substrate (18).

9. A method of Claim 7 wherein the connectors (16) are formed by electroplating metal onto the rigid layer (2).

10. A method of Claim 9 wherein a seed layer (30) is deposited prior to electroplating the metal connectors (16).

11. A method of Claim 9 wherein areas of photoresist (24,26,28) are defined over the rigid layer (2) prior to electroplating the metal, such that portions of the connectors (16) form bridges over the photoresist, and the photoresist is subsequently removed.

12. An electronic device (38) comprising a layer (2) of rigid material having electronic components (12) thereon, contiguous portions (14) of the rigid layer being defined by weakened regions (6) of the rigid layer (2), and flexible connectors (16) extending between components (12) on different portions (14).

13. A device of Claim 12 wherein the weakened regions comprise grooves (6,21) in one or both faces (8,10) of the rigid layer (2).

14. A device of Claim 12 wherein the rigid layer (2) is mounted over a flexible substrate (18).

15. A device of Claim 12 wherein the connectors (16) comprise electroplated metal.

16. A device of Claim 12 wherein the connectors (16) comprise a bridge-like portion.

17. An electronic device (38) comprising a layer (2) of rigid material having electronic components (12) thereon, and flexible connectors (16) extending between components on different contiguous portions (14) of the rigid layer, the rigid layer (2) being divided into the contiguous portions (14) such that the device (38) is flexible.

18. A device of Claim 17 wherein the rigid layer (2) has been divided into the contiguous portions (14) along weakened regions (6) of the rigid layer.

19. A device of Claim 18 wherein the weakened regions comprise grooves (6,21) in one or both faces (8,10) of the rigid layer (2).

20. A device of Claim 17 wherein the rigid layer (2) is mounted over a flexible substrate (18).

21. A device of Claim 17 wherein the connectors (16) comprise electroplated metal.

22. A device of Claim 17 wherein the connectors (16) comprise a bridge-like portion.

23. An article (42) having an electronic device (38) mounted thereon, the electronic device (38) comprising a layer (2) of rigid material having electronic components (12) thereon, contiguous portions (14) of the rigid layer being defined by weakened regions (6) of the rigid layer (2), and flexible connectors (16) extending between components (12) on different portions (14).

24. An article (42) having an electronic device (38) mounted thereon, the electronic device (38) comprising a layer (2) of rigid material having

electronic components (12) thereon, and flexible connectors (16) extending between components on different contiguous portions (14) of the rigid layer, the rigid layer (2) being divided into the contiguous portions (14) such that the device (38) is flexible.

Patent
Office
of
the
United
States
Department
of
Commerce
Patent
and
Trademark
Office
Patent
Office
of
the
United
States
Department
of
Commerce
Patent
and
Trademark
Office